

What is claimed is:

13. A method of forming a coated part, comprising the step of:  
coating a component part with magnesium fluoride; wherein said magnesium fluoride coating has a density of at least about 85% and a purity of at least about 99%, and said coating reduces corrosion of said component part upon exposure to a corrosive environment.
14. The method of claim 13, wherein said magnesium fluoride coating has a density of between about 85-90%.
15. The method of claim 13, wherein said magnesium fluoride coating has a density of about 100%.
16. The method of claim 13, wherein said corrosive environment comprises fluorine.
17. The method of claim 13, wherein said coating step is performed at a pressure of not more than about  $1 \times 10^{-5}$  torr.
18. The method of claim 13, wherein said coating step is performed at a temperature of at least about 250°C.
19. The method of claim 13, wherein said component part comprises aluminum nitride or aluminum.
20. The method of claim 13, wherein said component part has a surface finish of less than about 10RA.
21. The method of claim 14, further comprising the step of annealing said coating at a temperature of at least about 600°C.